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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,848	10/26/2004	Stephen Paul Briancourt	540-527	6261

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EXAMINER
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MAYLE, EDWARD J

ART UNIT	PAPER NUMBER
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3644

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/511,848	<b>Applicant(s)</b> BRIANCOURT, STEPHEN PAUL	
	<b>Examiner</b> Edward J. Mayle	<b>Art Unit</b> 3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on amendments of 06/30/06.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-17,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-17,19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/02/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/19/04 &amp; 2/09/05</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 7, 12, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Riggles (US Patent 2,406,710) in view of General Aircraft Limited (GB-A-537,234).

3. With regards to Claim 1: Riggles discloses an aircraft landing gear door assembly including a plurality of doors moveable between open positions, in which landing gear (2, Fig. 1) can be deployed into an aircraft slipstream through an aperture in the aircraft, and closed positions (Figs. 2-4), in which the doors are closed across the aperture, the plurality of doors including a first door mounted for rotational movement between closed and open positions about a first generally longitudinal axis (6, Fig. 1) and a transverse door mounted for rotational movement between closed and open positions about a generally horizontal axis that is transverse to the first generally longitudinal axis (16, Fig. 1).

4. The transverse door (16) of Riggles is exposed to the slipstream in the open position. GB teaches that such doors suffer from "the disadvantage that when opened

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up they present considerable resistance ... in the slipstream ..." (page 2, lines 40-42).

The considerable resistance in the slipstream increases drag significantly. It would have been obvious for a person having ordinary skill in the art at the time of the invention to improve upon the design of Riggles by keeping the transverse door out of the slipstream when the door is opened in order to minimize aerodynamic drag (as taught by GB). It is important to note that the longitudinal door (6) of Riggles is flush with the aircraft after the gear is down (as seen in Figure 1) and is therefore already out of the slipstream.

5. With regards to Claim 2: Riggles, as modified, discloses an assembly according to claim 1, in which the first door is mounted for fixed-axis rotational movement about the first generally longitudinal axis (door 6 is hinged at 7, Fig. 1).

6. With regards to Claim 3: Riggles, as modified, discloses an assembly according to claim 1, in which the transverse door is mounted for fixed-axis rotational movement about the transverse generally horizontal axis (door 16 is hinged at 17, Fig. 1).

7. With regards to Claim 7: Riggles, as modified, discloses an assembly according to claim 1, in which the transverse door is aft of the first door (Figs. 1-4).

8. With regards to Claim 12: Riggles, as modified, discloses an assembly according to claim 1, in which the plurality of doors include a third door mounted for rotational movement between closed and open positions about a third generally longitudinal axis, the first and third doors defining a pair of doors on opposite sides of the aperture (6, Fig. 1; Col. 1, lines 38-40).

9. With regards to Claim 19: Riggles, as modified, discloses an aircraft including a landing gear door assembly according to claim 1 (Claims 1-3 all claim the aircraft including the assembly).
10. With regards to Claim 20: Riggles, as modified, discloses an aircraft according to claim 19 (see above). Although Figure 1 shows only one aircraft landing gear Examiner takes official notice that there are at least two main landing gears on aircraft and possibly also a nose or tail landing gear (there are always at least three landing gear). 2, Fig. 1 is a landing gear; the corresponding landing gear on the other side of the airplane (not shown) is a further landing gear. When 2 is deployed it is adjacent to one end of first door (6, Fig. 1) when in its open position, the transverse door (16, Fig. 1) being disposed adjacent to said one end of the first door (6, Fig. 1) when the doors are in their closed position. The analogous situation occurs for the corresponding landing gear (the further landing gear) on the other side of the aircraft.
11. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riggles in view GB and further in view of White (WO 01/56878 A1).
12. With regards to Claim 4: Riggles, as modified, discloses an assembly according to claim 1 (see above), wherein the doors 6 are operated by rods 13 which are connected to crank arms 12 which are moved via connection to gears 10 which are in turn rotated through connection to shaft 11, gear 10 being mated to a larger gear which is ultimately rotated by action of the landing gear extension and retraction. Door 16 is

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actuated simultaneously with door 6, but by separate means: it is spring loaded.

Riggles does not disclose a linkage mechanism and a prime mover, the linkage mechanism connecting the plurality of doors to the prime mover such that the prime mover is effective to operate all the plurality of doors.

13. White discloses a linkage mechanism and a prime mover, the linkage mechanism connecting the plurality of doors to the prime mover such that the prime mover is effective to operate all the plurality of doors (page 1, lines 12-24).

14. It would have been obvious for a person having ordinary skill in the art at the time of the invention to modify the assembly of Riggles by including the teaching of White to operate all of the landing gear doors with "actuation means driving only one of the doors" (Page 1, line 22).

15. With regards to Claim 5: Riggles, as modified, discloses an assembly according to claim 4 (see above).

16. White discloses that the prime mover comprises a linear actuator (page 2, line 4). Being able to operate the gear doors in a single stroke of the linear actuator is merely stating an inherent feature of linear actuators.

17. Claims 8-11 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riggles in view of GB and further in view of Sakurai (US Patent 6,345,786 B1).

18. In regards to Claim 8: Riggles discloses an assembly according to claim 1, in which the plurality of doors (6, 16 Fig. 1) are mounted so that their movement from the closed to the open positions do not involve movement through space which was occupied by other doors in their closed positions (Fig. 1).

19. Sakurai teaches a linked multi-segment landing gear door for aircraft in which the plurality of doors include a second door moveable between closed and open positions, the second door being adjacent to the first door in the closed positions of the doors, the first door being so mounted that its rotational movement from its closed position to its open position involves movement of at least part of the first door through space which is occupied by the second door in its closed position and vacated by the second door in its open position (Figs. 2A,2B,2C).

20. It would have been obvious for a person having ordinary skill in the art at the time of the invention to improve upon the design of Riggles by incorporating the teachings of Sakurai by incorporating multi-segmented landing gear doors in order to provide adequate clearance between the landing gear doors and the ground or other aircraft parts. Note that in Fig. 1, item 30 would interfere with the outboard landing gear or ground if it were not segmented as taught by Sakurai.

21. In regards to Claim 9: Riggles Jr., as modified, discloses an assembly according to claim 8 (see above), in which the second door is mounted for fixed-axis rotational movement about a second generally longitudinal axis. Axes 66, 90, and 108 of Sakurai Fig. 2B are all longitudinal axes providing for fixed-axis rotational movement, any one of which could be regarded as the second one.

22. In regards to Claim 10: Riggles Jr., as modified, discloses an assembly according to claim 9 (see above), in which the first generally longitudinal axis is disposed at a location vertically spaced above the level of the aperture. All of axes 66, 90, and 108 of Sakurai Fig. 2b are vertically above the aperture. Any one of these axes could be regarded as the first one.

23. In regards to Claim 11: Riggles Jr., as modified, discloses an assembly according to claim 10 (see above), in which the first generally longitudinal axis is disposed in a region overlying the locations of adjacent edges of the first and second doors when they are closed. Doors 46 and 44 of Sakurai Fig. 2A can be taken as the first and second doors, which are shown adjacent in the closed position. Axis 108 then needs to be taken as the first longitudinal axis, and it is shown located above the region of doors 44 and 46.

24. In regards to Claim 13: Riggles discloses an assembly according to claim 12 (see above) with only one door which rotates about a longitudinal axis on each side of the aperture.

25. Sakurai teaches linked multi-segmented doors where up to three door segments (see Sakurai 42,44,46 Figs. 2A, 2B, 2C) could be used in place each single door 6 of Riggles Fig. 1. In Sakurai Fig. 2A, door 46 will be called the first door / axis 108 first axis; door 44 the third door / axis 90 third axis; door 42 the fourth door / axis 66 fourth axis.

26. In Sakurai the plurality of doors include a fourth door (42) moveable between closed and open positions, the fourth door being adjacent to the third door (44) in the



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closed positions of the doors, the third door being so mounted that its rotational movement from its closed position to its open position involves movement of at least part of the first door (46) through space which is occupied by the fourth door in its closed position and vacated by the fourth door in its open position (Sakurai Fig. 2C: arm 106 of door 46 moves through the space occupied by door 42).

27. In regards to Claim 14: Riggles Jr., as modified, discloses an assembly according to claim 13 (see above), in which the third door (44, Sakurai Fig. 2A) is mounted for fixed-axis rotational movement about a third generally longitudinal axis (90, Sakurai Fig. 2A).

28. In regards to Claim 15: Riggles Jr., as modified, discloses an assembly according to claim 13 (see above), in which the third generally longitudinal axis (90, Sakurai Fig. 2A) is disposed at a location vertically spaced above the level of the aperture.

29. In regards to Claim 16: Riggles Jr., as modified, discloses an assembly according to claim 15 (see above), in which the third generally longitudinal axis (90, Sakurai Fig. 2A) is disposed in a region overlying the locations of adjacent edges of the third (44) and fourth (42) doors when they are closed.

30. In regards to Claim 17 Riggles Jr., as modified, discloses an assembly according claim 13 (see above), in which the fourth door (42 Sakurai Fig. 2A) is mounted for fixed-axis rotational movement about a fourth generally longitudinal axis (66 Sakurai Fig. 2A).

***Response to Arguments***

31. Applicant's arguments filed 06/30/06 have been fully considered but they are not persuasive. Applicant states that the transverse door of Riggles is in the slipstream. Applicant further points out that the aircraft of General Aircraft Limited has only one door, and it is a transverse door. Both of these facts are true, but the references are being combined in a 35 USC 103(a) rejection directed at amended Claim 1 (which was essentially original Claim 6). Applicant states that it is incumbent on the Examiner "to indicate how or why he believes the subject matter of amended Claim 1 is disclosed in the Riggles reference." This is not the test that one uses in judging the validity of a 35 USC 103(a) rejection. Rather, would the references as a whole would lead one of ordinary skill to combine them in the claimed manner. In this case, Riggles anticipates everything in amended Claim 1 except for keeping the transverse door out of the slipstream; but General Aircraft Limited specifically teaches this feature.

Applicant has cancelled claim 6, and combined that subject matter (in more specific fashion) into Claim 1. Therefore, the 35 USC 102(b) rejection of original Claim 1 is now a 35 USC 103(a) rejection while the dependent claim rejections of the first office action are essentially unchanged. Applicant did not argue these previously issued rejections of the dependent claims, with the exception of stating that they all depend from Claim 1. This argument is moot because Claim 1 is not allowable.

32. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward J. Mayle whose telephone number is (571)-272-8969. The examiner can normally be reached on Mon-Fri 0830-1700.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on (571)-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Edward J. Mayle



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